AMENDMENTS TO THE CLAIMS:

Please cancel claims 2, 5-7, 9, 12, 15, 18, and 19, without prejudice or disclaimer of the subject matter; add new claims 21 and 22; and amend claims 1, 3, 4, 8, 10, 11, 13, 14, 16, 17, and 20, as shown below. This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method comprising:

storing data objects as nodes in a hierarchically-structured, multi-dimensional directed graph, the directed graph including a predecessor node, a first and a second intermediary nodes, and a successor node, the successor node connected to the predecessor node via a first sequence of nodes including the successor node, the first intermediary node, and the predecessor node and a second sequence of nodes including the successor node, the second intermediary node, and the predecessor node; ~~and~~

~~storing path information for a first object corresponding to a first node, where the path information comprises a sequence of nodes through the directed graph between the first node and a second node, where the second node is separated from the first node in the sequence of nodes by at least a third node~~

storing, for the successor node, the first and the second sequences of nodes;

receiving a query involving the successor node;

comparing the query to the first or the second sequence of nodes; and

resolving the query based upon comparing the query to the first or the second sequence of nodes.

2. (Cancelled)

3. (Currently Amended) The method of claim 1 wherein storing the data objects comprises:

storing each data object in a first column of a data table; and

storing a relation of ~~the~~ a first data object to a consecutive data object in a second field of the data table, where the consecutive data object is connected to the first data object in the directed graph by a single edge.

4. (Currently Amended) The method of claim 3 wherein storing ~~path information~~ the first and the second sequences of nodes comprises storing the ~~path information~~ first and the second sequences of nodes in a third field of the data table.

5. to 7. (Cancelled)

8. (Currently Amended) The method of claim 1 wherein storing ~~path information~~ the first and the second sequences of nodes comprises transforming the relational information into a coded value.

9. (Cancelled)

10. (Currently Amended) The method of claim 1 wherein storing ~~path information~~ the first and the second sequences of nodes comprises updating the ~~path information~~ the first and the second sequences of nodes to reflect changes in the directed graph.

11. (Currently Amended) An apparatus comprising a storage medium having instructions stored thereon, the instructions comprising:

a first code segment for storing data objects ~~within a table~~ as nodes in a hierarchically-structured, multi-dimensional directed graph, the directed graph including a predecessor node, a first and a second intermediary nodes, and a successor node, the successor node connected to the predecessor node via a first sequence of nodes including the successor node, the first intermediary node, and the predecessor node and a second sequence of nodes including the successor node, the second intermediary node, and the predecessor node;

~~a second code segment for storing a relation of a first data object to a second data object in the table, where the first data object and the second data object correspond to consecutive nodes on a directed graph; and~~

a ~~third~~ second code segment for storing, for the successor node, the first and the second sequences of nodes; ~~path information associated with the first data object in the table, where the path information comprises a sequence of nodes within the directed graph that is between the first node, the second node, and a third node~~

a third code segment for receiving a query involving the successor node;

a fourth code segment for comparing the query to the first or the second sequence of nodes; and

a fifth code segment for resolving the query based upon comparing the query to the first or the second sequence of nodes.

12. (Cancelled)

13. (Currently Amended) The apparatus of ~~claim 12~~ claim 11 wherein ~~the fifth~~ the fourth code segment includes a sixth code segment for detecting the ~~first data object~~ successor node within the ~~table~~ directed graph and comparing the ~~path information~~ first and the second sequences of nodes to the query.

14. (Currently Amended) The apparatus of claim 11 wherein the first and the second sequences of nodes ~~the first data object, the second data object, and the path information~~ are stored in a separate ~~columns~~ column of a single row of ~~the~~ a table than the successor node.

15. (Cancelled)

16. (Currently Amended) The apparatus of claim 11 wherein the ~~third~~ second code segment stores the ~~path information~~ first and the second sequences of nodes as a coded value generated from information about the ~~second and third node~~ predecessor node, the first and the second intermediary nodes, and the successor node and their locations within the directed graph.

17. (Currently Amended) A system comprising:

means for storing data objects as nodes in a hierarchically-structured, multi-dimensional directed graph, the directed graph including a predecessor node, a first and a second intermediary nodes, and a successor node, the successor node connected to the predecessor node via a first sequence of nodes including the successor node, the first intermediary node, and the predecessor node and a second sequence of nodes including the successor node, the second intermediary node, and the predecessor node;

means for ~~accessing~~ storing, for the successor node, the first and the second sequences of nodes; ~~path information comprising a sequence of nodes through a directed graph between a first node and a plurality of other nodes~~

means for receiving a query involving the successor node;

means for comparing the query to the first or the second sequence of nodes; and

means for ~~responding to~~ resolving the query ~~a query involving the first node,~~ based upon ~~on the path information~~ comparing the query to the first or the second sequence of nodes.

18. to 19 (Cancelled)

20. (Currently Amended) The system of ~~claim 19~~ claim 17 wherein the means for ~~responding to~~ comparing the query to the first or the second sequence of nodes comprises means for performing a pattern match between the query and a first data string listing the first sequence of nodes ~~the directed graph~~ and means for performing a pattern match between the query and a second data string listing the second sequence of nodes.

21. (New) The method of claim 1 wherein the first sequence of nodes is different from the second sequence of nodes.

22. (New) The method of claim 1 wherein comparing the query to the first or the second sequence of nodes further includes accessing the first and the second sequences of nodes.